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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|-----------------------------|------------------------|
| 10/810,856 | 03/29/2004 | Ganjiang Feng | 839-1055 | 9113 |
| 30024 7590 01/07/2008 NIXON & VANDERHYE P.C. 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203 | | | EXAMINER BALDWIN, GORDON | |
| | | | ART UNIT 1794 | PAPER NUMBER |
| | | | MAIL DATE 01/07/2008 | DELIVERY MODE PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|------------------------------------|--|
| Office Action Summary | Application No. 10/810,856 | Applicant(s) FENG ET AL. | |
| | Examiner Gordon R. Baldwin | Art Unit 1794 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 October 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 8-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 8-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6 and 8-17 rejected under 35 U.S.C. 103(a) as being unpatentable over Dardi (Pat. No. 4,339,509) and further in view of Strangman (Pat. No. 4,743,514).

Consider claims 1-6 and 8-17, Dardi teaches protective coating for gas turbine engines with a composition that forms the inner layer or the bond coating for a thermal barrier coating with the bond coat applied to the substrate and a oxide ceramic/metallic layer is applied over the bond coating. (Col. 2 lines 5-20) Dardi also teaches that the composition of the bond coat can consist of 5-35% Co; 10-35% Cr; 5-15% Al; 0-12% Si; and 0-5% Y with a balance of Ni considered to be within the range of 1-80%. Dardi does not teach that Cobalt can be in the range of 1-3%.

However, Strangman teaches a coating for gas turbine components with a composition of 15-35% Cr; 8-20%Al; .1-1.5% Si; 0-1% Y; balance of Ni; with cobalt in the range of 0-10%. (Col. 2 lines 13-65) But Strangman does not specifically use this coating as part of a TBC system, it is considered to be obvious to a person of ordinary skill in the art at the time of invention to apply the ceramic/metallic oxide layer of Dardi

over the coating taught by Stangman to provide for a coating with greater elevated temperature corrosion resistance. (Col. 2 lines 17-32 and Col. 3 lines 23-52) It is also considered additionally obvious since the percentages of the Dardi and the Strangman reference are very close to one another.

Additionally, Dardi and Strangman and the claims differ in that Dardi and Strangman do not teach the exact same proportions as recited in the instant claims.

However, one of ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because the compositional proportions taught by Dardi and Strangman overlap the instantly claimed proportions and therefore are considered to establish a prima facie case of obviousness. It would have been obvious to one of ordinary skill in the art to select any portion of the disclosed ranges including the instantly claimed ranges from the ranges disclosed in the prior art reference, particularly in view of the fact that;

“The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages”, In re Peterson 65 USPQ2d 1379 (CAFC 2003).

Also, In re Geisler 43 USPQ2d 1365 (Fed. Cir. 1997); In re Woodruff, 16 USPQ2d 1934 (CCPA 1976); In re Malagari, 182 USPQ 549, 553 (CCPA 1974) and MPEP 2144.05.

Response to Arguments

Applicant's arguments filed 10/16/2007 have been fully considered but they are not persuasive. The applicant's arguments in regard to the cobalt content and the

proposed deficiency in Dardi and Strangman are not persuasive enough to traverse the teaching of these two references. As stated in the last office action, the teaching of cobalt in Strangman, while several of the examples do teach that only a trace amount of cobalt is used, in the abstract as well as in the summary of the invention, the coating for a superalloy turbine component can contain a cobalt ingredient in the range of 0-10%. By this teaching, the range of cobalt claimed by the applicant is considered to be met by the teaching of Strangman. If Strangman is given its broadest possible interpretation, it's considered overlap the ranges taught by the applicant.

The applicant's secondary argument concerning the strengthening of the coating by the addition of tantalum and its claimed deleterious effects is not considered to be persuasive, even in light of the affidavit supplied by the applicant. First, if the Strangman is looked at in its broadest interpretation, then it teaches that tantalum can be in a range of 0-10%, thereby meaning that no tantalum can be present in the invention. While an example in Strangman may contain 7% tantalum, several other parts of Strangman disclose the 0% tantalum may be used, as stated in the rejection above. Secondly, the explanation in the affidavit does little to explain what amounts of tantalum would be deleterious, nor does it show any amounts that could cause such an effect. Does a trace amount of tantalum cause embrittlement and spallation of the coating or does it take 30 wt% of tantalum to cause such a formation of TaSi and TaTiSi intermetallic phase? The photograph supplied by the applicant does not clarify these issues since no amounts of tantalum correspond to the amounts of TaSi and TaTiSi intermetallic phases. While it appreciated that the applicant has supplied an affidavit to

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help clarify some the issues, the explanation given by Mr. Feng does not have enough information to traverse the previous rejection.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gordon R. Baldwin whose telephone number is (571)272-5166. The examiner can normally be reached on M-F 7:45-5:15.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Keith Hendricks can be reached on 571-272-1401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

GRB

/Jennifer McNeil/
Primary Examiner
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